AMENDMENT

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended) A single reactant component which is a microorganism or a cell ~~immobilized over~~ immobilized directly to a single electrode.

2. Canceled.

3. Canceled.

4. Canceled.

5. (Currently amended) The single reactant component of ~~claim 2~~ claim 1, wherein the microorganism is a bacterium.

6. (Original) The single reactant component of claim 5, wherein the bacterium is *E. coli.*

7. (Currently amended) The single reactant component of ~~claim 2~~ claim 1, wherein the cell is an osteoblast, a glial cell, or a neuron.

8. (Original) The single reactant component of claim 1, wherein the single electrode comprises iridium, platinum, palladium, gold, silver, copper, mercury, nickel, zinc, titanium, tungsten, aluminum, carbon, graphite, a metal oxide, a conducting polymer, a metal doped polymer, a conducting ceramic, a conducting clay, or a combination thereof.

9. (Original) The single reactant component of claim 1, wherein the single electrode has a diameter of about 60 μm to about 80 μm.

10. (Original) The single reactant component of claim 1, wherein the single electrode has a diameter of about 40 μm to about 60 μm.

11. (Original) The single reactant component of claim 1, wherein the single electrode has a diameter of about 20 μm to about 40 μm.

12. (Original) The single reactant component of claim 1, wherein the single electrode is placed on or immobilized on a substrate.

13. (Original) The single reactant component of claim 12, wherein the substrate comprises silicon, silicon dioxide, silicon nitride, glass, fused silica, borosilicate, gallium arsenide, indium phosphide, aluminum, ceramics, polyimide, quartz, a plastic, a resin, a polymer, a superalloy, zircaloy, steel, gold, silver, copper, tungsten, molybdeumn, tantalum, Kovar™, Kevlar™, Kapton™, Mylar™, Teflon®, brass, sapphire, fiberglass, a ceramic, mica, or a combination thereof.

14. (Currently amended) A plurality of the single reactant component immobilized directly to the single electrode according to ~~of~~ claim 1.

15-21. Canceled.

22. (Withdrawn) A method of making the single reactant component immobilized over the single electrode of claim 1, which comprises using an alternating current field to position the single reactant component over the single electrode.

23. (Withdrawn) The method of claim 22, which further comprises using AC electrical field to position single reactant component over the single electrode.

24. (Withdrawn) The method of claim 22, which further comprises controlling the conductivity of a buffer solution which comprises the single reactant component.

25. (Currently amended) A biosensor which comprises the single reactant component immobilized directly to ~~over~~ the single electrode according to ~~of~~ claim 1.

26. (Withdrawn) A method of assaying, analyzing, or monitoring a target analyte which comprises contacting a sample suspected of having the target analyte with the single reactant component of claim 1 and detecting a change or a result, if any.

27. (Withdrawn) The method of claim 26, wherein the result is compared with a standard or a control.

28. (Withdrawn) The method of claim 26, wherein detecting the change comprises conducting AC impedance, impedance spectroscopy, cyclic voltammetry, AC voltammetry, pulse voltammetry, square wave voltammetry, AC voltammetry, hydrodynamic modulation voltammetry, conductance, potential step method, potentiometric measurement, amperometric measurement, current step method, Fourier transformation analysis, wavelet transformation analysis, or a combination thereof.

29. (Withdrawn) A method of identifying an unknown analyte as a known analyte or being similar to a known analyte which comprises contacting a sample suspected of having the unknown analyte with the single reactant component of claim 1, determining a signature pattern vector for the unknown analyte and comparing the signature pattern vector with the signature pattern vector of the known analyte or the signature pattern vectors in a signature pattern vector database.

30. (Withdrawn) A method of making a signature pattern vector database which comprises determining a plurality of signature pattern vectors for a plurality of reactant components according to claim 1.

31. (Previously presented) The biosensor of claim 25, and further comprising a second single reactant component immobilized over a second single electrode.

32. (Currently amended) The biosensor of claim 31, wherein the second single reactant component ~~may be the same as or different from~~ is the same reactant component as the single reactant component or a different reactant componet as the single reactant component.

33. (Previously presented) The biosensor of claim 25, and further comprising a plurality of single reactant components immobilized over single electrodes, wherein the single reactant components may be the same or different.

34. (Previously presented) The biosensor of claim 25, and further comprising a substrate upon which the single electrode is placed or immobilized.

35. (Previously presented) The biosensor of claim 34, wherein the substrate comprises silicon, silicon dioxide, silicon nitride, glass, fused silica, borosilicate, gallium arsenide, indium phosphide, aluminum, ceramics, polyimide, quartz, a plastic, a resin, a polymer, a superalloy, zircaloy, steel, gold, silver, copper, tungsten, molybdeumn, tantalum, Kovar™, Kevlar™, Kapton™, Mylar™, Teflon®, brass, sapphire, fiberglass, a ceramic, mica, or a combination thereof.

36. (Previously presented) The biosensor of claim 35, and further comprising a permeation layer, an electrode pad, a measurement system, an environment chamber, a pulse generator, a micromanipulator, a CCD camera, a multichannel oscilloscope, a digital signal processor, a MEMS mixer, a suction system, a filter, a microreservoir, a microfluidic channel, a treatment cassette, a detection cassette, a data recording element, a reagent storage module, a mixing chamber, a reaction chamber, or combinations thereof.